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Cold molecular NO from a Stark guide BRYAN BICHSEL, JASON ALEXANDER, NEIL SHAFER-RAY, MICHAEL MORRISON, ERIC ABRAHAM, University of Oklahoma — Although the success of laser cooling and trapping has had a major impact on atomic physics, the requirements of simple internal structure have limited its use to a few atomic species. A modified Stark guide can be used as a source for cold polar molecules by filtering the cold fraction from a thermal source. Our hexapole Stark guide is constructed from straight copper rods with ± 4.5 kV on alternating wires. We present experimental results for creating a controlled (65-80K) molecular source of NO, the enhancement of the lowest ro-vibrational states of this source by the Stark guide capturing those particles with the lowest transverse temperature, as well as a new technique for measuring the speed distribution of a cold molecular sample. Furthermore, we discuss progress towards extracting and isolating longitudinally cold (<1K) molecules.

Bryan Bichsel
University of Oklahoma

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